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REMARKS

Claims 1-9, 11-17, 103, 104, 106-115, and 123-136 are in the application. Entrance of this (second) Amendment after final under Rule 116 is respectfully requested.

1. Examiner's Advisory Communication

In his advisory facsimile communication of February 6, 2006, the Examiner indicates that claims 10, 116-119 and 120-122 are not allowable.

In the interest of early issuance of a first patent application, said claims 10 and 116-122 are canceled.

Applicant intends to file a divisional (continuation) patent application on unallowed claims 10 and 116-122. (Additional claims restricted from consideration in the present application will ALSO be the subject of successor divisional (continuation) patent applications.)

2. Summary

The present amendment and remarks have overcome and discussed each of the bases for the rejections presented in the Final Office Action. No new subject matter has been introduced by the present amendment.

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3. Contact will be Attempted

In order to verify the acceptability of the present amendment to place the present application in conditions for allowance, Applicant's undersigned representative will attempt to contact the Examiner by telephone on February 20-23, 2006.

Should the Examiner wish to avoid the disruption of any such telephone call, he may simply indicate: --Application serial no. 09/641,667 is being passed to issuance as amended-- (or some equivalent message) by e-mail to Applicant's undersigned representative at <wfuess@gmail.com>.

In consideration of the amendment, the present application is deemed in condition for allowance. The timely action of the Examiner to that end is earnestly solicited.

Applicant's undersigned attorney is at the Examiner's disposal should the Examiner wish to discuss any matter which might expedite prosecution of this case.

Sincerely yours,

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[ ] Filed Under 37 CFR §1.34(a)

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office at 703-872-9307 (Technology Center 1600) on February 20, 2006.

571-273-8300  
Date: February 20, 2006 Signature:

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## CLAIMS (IN AMENDED FORM)

1. (Previously Amended) A method of assaying molecules in a sample comprising the steps of:
  - providing a sample that contains one or more target molecules or molecular complexes;
  - contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;
  - subjecting said target-probe complex to an applied magnetic field so as to induce magnetization; and
  - measuring and characterizing a magnetic signal of said target-probe complex induced by said magnetic field of the target-probe complex, and thus also of the one or more target molecules or molecular complexes.
2. (Original) The method of claim 1, wherein said target molecule or molecular complex is disposed on a support.
3. (Previously Amended) The method of claim 2, wherein said target molecule or molecular complex is disposed on the support in an array.
4. (Previously Amended) The method of claim 3, wherein said array is an addressable array.
5. (Previously Amended) The method of claim 1, wherein said one or more probes are disposed on a support.
6. (Previously Amended) The method of claim 5, wherein said one or more probes are disposed on the support in an array.
7. (Original) The method of claim 6, wherein said array is an addressable array.
8. (Previously Amended) The method of claim 1, wherein said

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measuring and characterizing is of a magnitude of the magnetic signal resulting from magnetization induced in said target-probe complex in response to said applied magnetic field.

9. (Previously Amended) The method of claim 1, wherein said measuring and characterizing comprises:

providing a magnetic sensor; and  
generating the magnetic signal with the magnetic sensor in response to said one or more magnetic characteristics of the target-probe complex.

10. (Canceled)

11. (Previously Amended) The method of claim 9, wherein said measuring and characterizing comprises:

providing a signal processing means that generates readable output from said signal.

12. (Previously Amended) The method of claim 9

wherein said one or more target molecules or molecular complexes are disposed on a support;

and wherein said measuring and characterizing comprises:

moving the support and the sensor in relation to each other in one or more directions.

13. (Previously Amended) The method of claim 1, further comprising:

subjecting said target-probe complex to one or more of a plurality of applied magnetic fields having different intensities.

14. (Previously Amended) The method of claim 1, further comprising:

subjecting said target-probe complex to one or more of a plurality of applied magnetic fields having different directions.

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15. (Previously Amended) The method of claim 1, further comprising:

contacting the one or more target molecules or molecular complexes with a non-magnetic colloid so as to block the magnetic signal from the reduce non-specific binding of the one or more probes to the target molecules or molecular complexes.

16. (Previously Amended) The method of claim 1, further comprising:

joining the one or more probes to one or more colored beads, fluorescent beads, or fluorescent cells.

17. (Previously Amended) The method of claim 1, further comprising the step of detecting the presence of said target-probe complex by visual, electronic or optical means.

103. (Previously Amended) A method of assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said one or more target molecules of molecular complexes with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting said target-probe complex to an applied magnetic field so as to induce magnetization; and

measuring and characterizing a time response, called the magnetic swing time, of the magnetic signal resulting from magnetization induced in said target-probe complex in response to said applied magnetic field.

104. (Previously Amended) The method of claim 1, wherein said measuring and characterizing is additionally of a spatial orientation of the magnetic signal resulting from magnetization induced in said target-probe complex in response to said applied magnetic field.

105. (Canceled)

106. (Previously Amended) The method of claim 105 wherein measuring and characterizing of the hysteresis loop also measures and characterizes the spatial orientation of the target-probe complex, and thus said one or more of the presence, location, orientation and quantity of the target-probe complex.

107. (Previously Amended) The method of claim 105 wherein measuring and characterizing of the hysteresis loop also measures and characterizes the saturation magnetization of the target-probe complex, and thus said one or more of the presence, location, orientation and quantity of the target-probe complex.

108. (Previously Amended) The method of claim 105 wherein measuring and characterizing of the hysteresis loop also measures and characterizes the remnant magnetization of the target-probe complex, and thus said one or more of the presence, location, orientation and quantity of the target-probe complex,

109. (Previously Amended) The method of claim 105 wherein measuring and characterizing of the hysteresis loop also measures and characterizes the coercive force of the target-probe complex, and thus said one or more of the presence, location, orientation and quantity of the target-probe complex.

110. (Previously Added) The method of claim 1, further comprising:

subjecting said target-probe complex to one or more of a plurality of applied electric fields having different intensities.

111. (Previously Added) The method of claim 1, further comprising:

subjecting said target-probe complex to one or more of a plurality of applied electric fields having different directions.

112. (Previously Added) The method of claim 1 wherein the contacting of said target is with one or more probes containing a ferromagnetic material as the magnetic label.

113. (Previously Amended) The method of claim 1 wherein the contacting of said target is with one or more probes containing a ferrofluid as the magnetic label.

114. (Previously Added) The method of claim 1 wherein the contacting of said target is with one or more probes containing a paramagnetic material as the magnetic label.

115. (Previously Added) The method of claim 1 wherein the contacting of said target is with one or more probes containing a superparamagnetic material as the magnetic label.

116. (Canceled)

117. (Canceled)

118. (Canceled)

119. (Canceled)

120. (Canceled)

121. (Canceled)

122. (Canceled)

123. (Previously Added) The method of claim 103 wherein the measuring and characterizing is further of the spatial orientation of the target-probe complex, and thus also of the one or more target molecules or molecular complexes.

124. (Previously Added) The method of claim 103 wherein the

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measuring and characterizing is further of the hysteresis loop of the target-probe complex which hysteresis loop is solvable for any of (1) saturation magnetization, (2) remnant magnetization, (3) coercive force and (4) magnetic magnitude.

125. (Canceled)

126. (Currently Amended) The A method of ~~claim 125~~ further of assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting a substantially planar sample of said target-probe complex to an applied saturation magnetic field in the plane of sample so as to induce saturation magnetization of the target-probe complex; and

measuring and characterizing with a magnetic sensor a magnetic signal of said target-probe complex induced by said applied magnetic field so as to identify and determine any of the presence, location, orientation and quantity of the target-probe complex, and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized magnetic signal a time response, called magnetic swing time, of the target-probe complex, and thus also of the one or more target molecules or molecular complexes

127. (Currently Amended) ~~The~~ A method of ~~claim 125~~ further of assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;



subjecting a substantially planar sample of said target-probe complex to an applied saturation magnetic field in the plane of sample so as to induce saturation magnetization of the target-probe complex; and

measuring and characterizing with a magnetic sensor a magnetic signal of said target-probe complex induced by said applied magnetic field so as to identify and determine any of the presence, location, orientation and quantity of the target-probe complex; and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized signal the spatial orientation of the target-probe complex, and thus also of the one or more target molecules or molecular complexes.

128. (Currently Amended) The A method of claim ~~125~~ further of assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting a substantially planar sample of said target-probe complex to an applied saturation magnetic field in the plane of sample so as to induce saturation magnetization of the target-probe complex; and

measuring and characterizing with a magnetic sensor a magnetic signal of said target-probe complex induced by said applied magnetic field so as to identify and determine any of the presence, location, orientation and quantity of the target-probe complex; and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized magnetic signal a hysteresis loop that is solvable for any of (1) saturation magnetization, (2) remnant magnetization, (3) coercive force and (4) magnetic magnitude.

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129. (Canceled) .

130. (Currently Amended) The A method of claim ~~129~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting a sample of said target-probe complex to an applied magnetic field the so as to induce magnetization of the target-probe complex;

measuring and characterizing with a magnetic sensor a magnetic field of said target-probe complex so as to identify and determine any of the presence, location, orientation and quantity of the target-probe complex, and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized magnetic field of the target-probe complex a time response, called magnetic swing time, of the target-probe complex, and thus also of the one or more target molecules or molecular complexes

131. (Currently Amended) The A method of claim ~~129~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting a sample of said target-probe complex to an applied magnetic field the so as to induce magnetization of the target-probe complex;

measuring and characterizing with a magnetic sensor a magnetic field of said target-probe complex so as to identify and determine any of the presence, location, orientation and quantity

of the target-probe complex, and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized magnetic field the orientation of the target-probe complex, and thus also of the one or more target molecules or molecular complexes.

132. (Currently Amended) ~~The A method of claim 129~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

subjecting a sample of said target-probe complex to an applied magnetic field the so as to induce magnetization of the target-probe complex;

measuring and characterizing with a magnetic sensor a magnetic field of said target-probe complex so as to identify and determine any of the presence, location, orientation and quantity of the target-probe complex, and thus also of the one or more target molecules or molecular complexes; and

determining from the measured and characterized magnetic field a hysteresis loop of the target probe complex, which hysteresis loop is solvable for any of (1) saturation magnetization, (2) remnant magnetization, and (3) coercive force.

133. (Canceled)

134. (Currently Amended) ~~The A method of claim 133~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

applying a magnetic field to the target-probe complex so as

to induce magnetization of the target-probe complex; and  
measuring and characterizing with a magnetic sensor the  
magnetic field of said target-probe complex while forcibly moving  
the target probe complex relative to the applied magnetic field,  
therein to determine the magnetic field of the target-probe  
complex; and thus also of the one or more target molecules or  
molecular complexes that are part of the target-probe complex;  
and

determining from the measured and characterized magnetic field of the target-probe complex a time response, called magnetic swing time, of the target-probe complex, and thus also of the one or more target molecules or molecular complexes

135. (Currently Amended) The A method of ~~claim 133~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target  
molecules or molecular complexes;

contacting said target with one or more probes under  
conditions which permit the formation of a target-probe complex,  
wherein the probe comprises one or more magnetic labels;

applying a magnetic field to the target-probe complex so as  
to induce magnetization of the target-probe complex; and

measuring and characterizing with a magnetic sensor the  
magnetic field of said target-probe complex while forcibly moving  
the target probe complex relative to the applied magnetic field,  
therein to determine the magnetic field of the target-probe  
complex; and thus also of the one or more target molecules or  
molecular complexes that are part of the target-probe complex;  
and

determining from the measured and characterized magnetic field the orientation of the target-probe complex, and thus also of the one or more target molecules or molecular complexes.

136. (Currently Amended) The A method of ~~claim 133~~ further assaying molecules in a sample comprising the steps of:

providing a sample that contains one or more target

molecules or molecular complexes;

contacting said target with one or more probes under conditions which permit the formation of a target-probe complex, wherein the probe comprises one or more magnetic labels;

applying a magnetic field to the target-probe complex so as to induce magnetization of the target-probe complex; and

measuring and characterizing with a magnetic sensor the magnetic field of said target-probe complex while forcibly moving the target probe complex relative to the applied magnetic field, therein to determine the magnetic field of the target-probe complex, and thus also of the one or more target molecules or molecular complexes that are part of the target-probe complex; and

determining from the measured and characterized magnetic field a hysteresis loop of the target probe complex, which hysteresis loop is solvable for any of (1) saturation magnetization, (2) remnant magnetization, and (3) coercive force.